

5.1.3.2 Impacts on Spiny Dogfish

Current regulations allow vessels to land 600 pounds of spiny dogfish from May 1 – October 31 and 300 pounds from November 1 – April 30 until the quota of 4 million pounds is reached.

Spiny dogfish have been caught routinely as bycatch in the whiting fishery dating back before the development of the raised footrope trawl. In fact, in 1995, DMF promoted the use of the raised footrope trawl to allow small mesh trawling for dogfish in state waters because the bycatch of regulated species was presumably below 5 percent. During the late 1980s and prior to 1995, Provincetown trawlers targeted dogfish during the summer and fall in most of Cape Cod Bay (and in other state waters) under DMF regulations. This included a prohibition on the possession of regulated multispecies for any vessel fishing with small mesh. Council action (Amendment 5) in 1994 prohibited this fishery in state waters for any federally permitted vessel. This action brought the directed dogfish fishery in Massachusetts waters to a close in 1995.

In the September – November whiting fishery in upper Cape Cod Bay, spiny dogfish is not one of the target species; rather, it is bycatch that is occasionally retained. Catches in the proposed exemption area have been highly variable among years, trips, and tows. The size composition of the catch as well as daily market conditions affect fishermen's decisions to either retain or discard their dogfish catch. Fishermen *usually* avoid large concentrations of dogfish because of its impact on the quality and marketability of their whiting product. A soft-bodied fish, whiting are often crushed and lose a significant amount of scales when they captured in the codend with large amounts of spiny dogfish (because of the dogfish's coarse skin). If schools of dogfish are present in a given area, fishermen usually attempt to avoid the dogfish and/or minimize the catch of dogfish by towing in different locations. However, on some occasions in the past, strong demand and low whiting catches have motivated fishermen to target dogfish for the remainder of the trip.

In the 1999 experimental raised footrope trawl fishery, the reported spiny dogfish catch (retained and discarded catch based on sea sampling and fishermen's log reports) was 400,051 lbs (239 mt). This value is lower than that generated by expanding the sea sampling data to estimate the catch from unobserved trips (528,994 lbs.). The reported catch that was landed in the ports of Provincetown and Gloucester by vessels participating in the raised footrope trawl experimental fishery (presuming these vessels fished almost exclusively in the proposed exemption area) totaled 364,794 lbs. (165.5 mt).

While dogfish was a primary target species for some vessels participating in the raised footrope trawl experimental fisheries, it will no longer be. Low trip limits (600 and 300 lbs.) will prevent fishermen from targeting dogfish in this and other fisheries. With these low allowable trip limits, if high dogfish catch starts to occur during the course of a trip in the raised footrope trawl fishery, fishermen will not be able to switch their target species from whiting and red hake to dogfish. They will be more likely to try to find other areas (within the proposed exemption area) to fish for a "cleaner" (and thus more marketable) catch of whiting. This should lower both the overall landings of spiny dogfish as well as the mortality of dogfish in the raised footrope trawl fishery.

5.1.3.3 Impacts on Atlantic Herring

The Atlantic Herring FMP was approved by NMFS October 27, 1999 and implementation is expected during the summer of 2000. This FMP uses a total allowable catch (TAC) distributed to four management areas to control herring mortality. There are no restrictions on gear, and the fishery is open access so any vessel may obtain a herring permit. When 95% of the TAC is caught, the directed fishery for herring is closed, but vessels are allowed to land up to 2,000 pounds of herring in any single calendar day. This will allow fisheries that have an incidental catch of herring to continue. The allowance was established based on recent observations of all catches of herring by other gear types over the entire year. Since the allowance will only be applied after the directed fishery is closed, it is sufficiently cautious that it will prevent the TAC from being exceeded by incidental catches that take place after the directed fishery is closed. At the same time, by not prohibiting the landing of herring, it serves to minimize wasteful discards. The allowance, which can be adjusted in future years if necessary, included consideration of the experimental raised footrope trawl fishery when it was determined.

The raised footrope trawl fishery will take place primarily in herring Management Area 1A. The recommended TAC for this area is 45,000 mt, approximately 60% of recent landings from this area. If this TAC is approved, there is a possibility that the directed herring fishery will be closed prior to the end of the raised footrope trawl fishery. If this occurs, these vessels will only be able to land up to 2,000 pounds of herring. A review of the observer data for the 1999 experimental fishery (Appendix II) shows that these vessels caught between zero and 174 pounds of herring per trip, far below the amount that will be allowed to be landed under the herring regulations. In fact, of 71 observed trips, 34 did not catch any herring and only four caught over 100 pounds. This information is consistent with observations from the 1997 fishery, where the catch of Atlantic herring averaged five pounds in Area 2B and 96 pounds in Area 4, with no trips that exceeded 309 pounds. Based on this information, the raised footrope trawl fishery is unlikely to result in a significant herring catch that will result in the herring TAC being exceeded by incidental catches in this fishery. The herring incidental catch allowance appears set high enough that the raised footrope trawl fishery will not generate significant herring discards. Finally, if the herring TAC is not reached by the time this fishery begins, it is unlikely that there will be sufficient herring landings in the raised footrope trawl fishery to significantly speed the harvest of the herring TAC.

5.1.4 Impacts on Endangered and Threatened Species and Other Marine Mammals

Framework Adjustment 35 proposes to allow a seasonal whiting raised footrope trawl fishery in Cape Cod Bay and the southern Gulf of Maine. The action would establish a permanent whiting and red hake fishery that would provide a seasonal small mesh fishing opportunities for vessels fishing in and around the Gulf of Maine. Operation of the fishery is proposed for September 1 – November 20 in an area defined by information collected by DMF through a number of experimental fisheries conducted between 1996 – 1999. To discourage vessels from rigging their gear improperly, multispecies and other bycatch restrictions for the fishery are proposed to be the same as in the experimental fishery and are more restrictive than those required for *Multispecies Exempted Fisheries*. Net specifications include a requirement for participating vessels to use a minimum 2.5-inch mesh and a prohibition on the use of net strengtheners.

As discussed in Amendment 12 and reviewed Framework Adjustment 32 to the Northeast

Multispecies FMP, the operation of the whiting fishery may have potential impacts on endangered and threatened species and other marine mammals. Interactions may occur, given the overlap between the range of a number of protected species and the prosecution of the fishery in upper Cape Cod Bay (Figure 6). Although the possibility of encounters with small mesh otter trawls (the predominant gear type in this fishery) exists, DMF observer coverage during the 1996-1999 seasons contains no documented takes of threatened, endangered or other protected species, including sea turtles. Furthermore, the proposed action states that DMF will likely contribute 4-7 sea sampling trips per month during the raised footrope trawl fishery season, and there is a recommendation for NMFS to match this level of coverage. Concerns that turtles become entangled in mesh greater than or equal to 4-inches, as used in the summer flounder fishery, may be addressed by the fact that participants are not likely to use mesh over 3-inches because of the potential for a significant loss of catch.

Right whales and harbor porpoise are both species of concern because of their low stock status, in the case of right whales, and for porpoise, because of high levels of bycatch in the multispecies fishery. Both species are managed under established Take Reduction Plans that were discussed in Amendment 12. Additional measures are under consideration for the Atlantic Large Whale Take Reduction Plan that will reduce the overall risk of entanglement represented by the multispecies fishery. This proposed action should have no affect on right whale critical habitat or right whale utilization of the area.

NMFS has previously concluded that measures approved for the whiting fishery fall within the scope of consultations on prior Northeast Multispecies FMP actions. The Council proposes that none of the measures discussed in this document is expected to result in the addition of adverse impacts which would change the determinations in those consultations. The Council further proposes that actions contained in Framework 35 are not likely to jeopardize the continued existence of any endangered and threatened species, or affect critical habitat.

5.1.5 Impacts on Habitat, Including EFH Assessment

A comprehensive description of the physical environment and assessment of the impacts to habitat resulting from fishing practices is presented in Amendment 11 to the Northeast Multispecies Fishery Management Plan. The alternatives and actions proposed in this framework adjustment will not increase any adverse impacts on essential fish habitat (EFH) resulting from fishing activity.

Reductions in fishing effort are one mechanism known to minimize the adverse impacts on habitat associated with fishing practices by reducing the frequency and intensity of fishing gear use. The modification of fishing gear, that which reduces the weight of fishing gear or the amount of fishing gear in contact with the bottom, is another mechanism known to reduce the adverse impacts on habitat associated with certain fishing activities. Section 4.5 of Amendment 11 describes the potential habitat impacts associated with a raised footrope trawl, concluding that the impacts from this gear configuration may be less than traditional otter trawl configurations due to the reduced direct contact with the sea floor. Measures that do not directly reduce fishing effort, but rather manage how the effort is distributed among the fishing industry or the size class of fish targeted by the industry, such mesh size restrictions, minimum fish size restrictions, bycatch reduction methods, or monitoring programs would not be expected to have a direct

effect on the habitat of the region.

5.1.5.1 Raised Footrope Trawl Fishery Season

This measure proposes to allow the raised footrope trawl fishery to operate from September 1 until November 20 of each year. This measure would not affect the overall amount of fishing effort in the region, especially that of bottom-tending mobile fishing gear, and would not be expected to have any effect on essential fish habitat.

5.1.5.2 Raised Footrope Trawl Fishery Area

This measure proposes to allow the raised footrope trawl fishery only within the constraints of the area described in Section 3.1.2 of this document. This area is currently open to all types of bottom-tending mobile fishing gear, except during the “rolling closures” (see Section 3.1.4 of this document). Due to the nature of the fishing gear used in the raised footrope trawl fishery, this measure would not affect the overall amount of fishing effort in the region, especially that of bottom-tending mobile fishing gear, and would not be expected to have any effect on essential fish habitat.

5.1.5.3 Raised Footrope Trawl Gear Specifications

This measure proposes a set of specifications for the fishing gear allowed to be used in the raised footrope trawl fishery. Due to the nature of the fishing gear used in the raised footrope trawl fishery, this measure would not be expected to have any effect on essential fish habitat.

5.1.5.4 Adjustment to Framework 33 October/November Closure Provisions

The two options that the Council considered either exempted the raised footrope trawl fishery from the temporary closures in a portion of the Gulf of Maine (Blocks 124 and 125) or moved north the southern boundary of these closures so as to avoid conflict with the boundary of the raised footrope trawl fishery. Neither of these options would have allowed fishing with the raised footrope trawl in the year-round area closures, but only in the short-duration temporary closures. Neither option is therefore expected to have a direct effect on the habitat of the region. (The Council chose to exempt participants from the temporary closures in a portion of the Gulf of Maine (Blocks 124 and 125)).

5.1.5.5 Allowable Landings and Bycatch Restrictions

Implementation of this measure would not be expected to have any effect on the habitat of the region.

5.1.5.6 Recommended Level of Monitoring

This recommendation would not be expected to have any effect on the habitat of the region.

5.1.5.7 EFH Assessment

This essential fish habitat (EFH) assessment is provided pursuant to 50 CFR 600.920 of the EFH Interim Final Rule to initiate EFH consultation with the National Marine Fisheries Service.

5.1.5.7.1 Description of the Proposed Action

See Section 3.1 for a description of the action proposed in this framework adjustment. The activity described by this proposed action, fishing for whiting and red hake with a raised footrope

trawl, is proposed to occur only in the areas of upper Cape Cod Bay and southern Gulf of Maine (see Figure 6). The range of this activity occurs across the designated EFH of most Council-managed species (all but offshore hake – see Amendments 11 and 12 to the Northeast Multispecies FMP). The range of this activity also occurs across the designated EFH of most species managed by the Mid-Atlantic Fishery Management Council (all but ocean quahog and tilefish) and species managed under the NMFS Highly Pelagic Species FMP.

5.1.5.7.2 Analysis of the Effects of the Proposed Action

This action proposes to allow a seasonal whiting raised footrope trawl fishery in upper Cape Cod Bay and the southern Gulf of Maine. This action will allow for a transition from a successful experimental fishery for whiting and red hake focused on minimizing regulated species bycatch to a more permanent fishery that provides a seasonal small mesh fishing opportunity for vessels fishing in and around the Gulf of Maine. The proposed season for the raised footrope trawl fishery is September 1 - November 20. The proposed area is a subset of Areas 2B and 4 from the experimental fishery (see Figure 1) and encompasses the area that was most heavily fished and most heavily sampled by observers during the annual experimental fisheries from 1996-1999.

Although the raised footrope trawl proposed to be used in the small mesh whiting fishery may be associated with some adverse impacts to some types of bottom habitat, the impacts from this gear configuration may be less than traditional otter trawl configurations due to the reduced direct contact with the sea floor (see Section 4.5 of Amendment 11 to the Northeast Multispecies FMP). This action does not propose to increase current levels of fishing activity in the U.S. EEZ. The other measures proposed in this action (adjustments to Framework 33 rolling closure provisions, allowable landings and bycatch reductions, and recommended level of monitoring) would have no impact on habitat. None of these proposed actions will have any direct adverse impacts on the EFH of any managed species relative to the baseline conditions established under Amendments #11 and 12.

5.1.5.7.3 Conclusions

The action proposed under this framework has no potential adverse effects on the EFH of any species managed by the New England, Mid-Atlantic, or South Atlantic Fishery Management Councils or the National Marine Fisheries Service. Because there are no potential adverse impacts associated with this action, an EFH consultation is not required.

5.1.5.7.4 Proposed Mitigation

None required.

5.2 ECONOMIC IMPACTS

5.2.1 Background Information

Table 11 and Table 12 summarize, by port, pounds and value of species landed in the experimental raised footrope trawl fishery in 1998 and 1999 respectively and characterize the positive economic impact that this fishery will have primarily in the ports of Gloucester and Provincetown, but also in Chatham. During the 1998 season, vessels from Chatham, Gloucester, and Provincetown participated in the experimental raised footrope trawl fishery and landed a total of over 1,900,000 pounds of fish, valued at about \$930,000. Gloucester landed 53.6% of the total volume and 58.7% of the fishery's value. Provincetown followed, landing 39.7% of the volume and 38% of the value; vessels from Chatham comprised the remainder.

Twenty four vessels from the ports of Chatham, Gloucester and Provincetown actively participated in the 1999 Raised Footrope Trawl Experimental Fishery landing (from a total of 459 trips) 3.1 million pounds of fish with an ex-vessel value of approximately \$1.9 million dollars. Eighty-three percent of the volume landed and ninety-three percent of the value was attributable to the target species silver hake and red hake. Approximately 65% of all fishery activity (volume, value, trips) were from the port of Provincetown; Gloucester had 30%, and Chatham 5%.

In general, whiting and red hake were the two predominant species caught in the fishery. They comprised about 80% of the total landings and more than 90% of the fishery's total value during 1998 and 1999. Spiny dogfish was the third most-landed species, comprising about 13-14% of the total landings and about 5% of the total fishery value during 1998 and 1999. Landings and revenues from spiny dogfish in this fishery can be expected to decrease below the levels observed in the experimental fishery because spiny dogfish was targeted on some trips during the experimental fishery. New landing limits on dogfish (600 and 300 pounds) will prevent vessels in this fishery from targeting dogfish.

Table 11 Summary of Landings and Value by Species and Port for 1998 Experimental Raised Footrope Trawl Fishery

	Port of Landing Gloucester		Provincetown		Chatham		Grand Total		Grand Total	
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Percent	Value	Percent
Whiting	812,512	\$487,507.20	517,261	\$305,183.99	22,568	\$12,186.72	1,352,341	70.5%	\$804,877.91	86.6%
Red Hake	115,602	\$35,836.62	30,812	\$5,546.16	12,657	\$3,037.68	159,071	8.3%	\$44,420.46	4.8%
Spiny Dogfish	73,923	\$13,306.14	85,994	\$15,478.92	88,301	\$15,011.17	248,218	12.9%	\$43,796.23	4.7%
Mackerel	12,270	\$4,662.60	120,707	\$24,141.40	837	\$108.81	133,814	7.0%	\$28,912.81	3.1%
Squid, Loligo	1,085	\$455.70	2,892	\$1,301.40	0	\$0.00	3,977	0.2%	\$1,757.10	0.2%
Squid, Ilex	3,585	\$752.85	25	\$5.25	0	\$0.00	3,610	0.2%	\$758.10	0.1%
Squid, NS	3,288	\$1,939.92	2,055	\$822.00	47	\$18.80	5,390	0.3%	\$2,780.72	0.3%
Herring	4,600	\$414.00	0	\$0.00	1,350	\$121.50	5,950	0.3%	\$535.50	0.1%
Butterfish	1,060	\$657.20	2,015	\$483.60	1,297	\$817.11	4,372	0.2%	\$1,957.91	0.2%
N/S Finfish	310	\$130.20	0	\$0.00	0	\$0.00	310	0.0%	\$130.20	0.0%
Scup	10	\$2.00	5	\$1.00	0	\$0.00	15	0.0%	\$3.00	0.0%
Bluefish	0	\$0.00	15	\$3.00	0	\$0.00	15	0.0%	\$3.00	0.0%
Sea Bass, Black	2	\$4.00	2	\$3.00	0	\$0.00	4	0.0%	\$7.00	0.0%
Grand Total	1,028,247.00	\$545,668.43	761,783	\$352,969.72	127,057	\$31,301.79	1,917,087	100.0%	\$929,939.94	100.0%
Trips	246		170		23		439			
Pounds/trip	4,180		4,481		5,524		4,367			

Table 12 Summary of Landings and Value by Species and Port for 1999 Experimental Raised Footrope Trawl Fishery

	Port of Landing Gloucester		Provincetown		Chatham		Grand Total		Grand Total	
	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Percent	Value	Percent
Whiting	877,210	\$508,781.80	1,383,273	\$1,161,949.49	88,796	\$48,837.80	2,349,279	75.1%	\$1,719,569.09	88.3%
Red Hake	55,403	\$22,715.03	163,621	\$73,629.63	20,936	\$3,559.12	239,960	7.7%	\$99,903.78	5.1%
Spiny Dogfish	157,383	\$23,607.45	207,411	\$29,037.48	77,944	\$13,250.48	442,738	14.2%	\$65,895.41	3.4%
Mackerel	14,980	\$6,890.80	9,449	\$6,425.32	1,429	\$757.37	25,858	0.8%	\$14,073.49	0.7%
Squid, Loligo	22,802	\$14,137.24	10,990	\$10,110.80	51	\$24.99	33,843	1.1%	\$24,273.03	1.2%
Squid, Ilex	515	\$154.50	0	\$0.00	0	\$0.00	515	0.0%	\$154.50	0.0%
Squid, NS	1,265	\$986.70	23,331	\$16,098.39	3,883	\$3,300.55	28,479	0.9%	\$20,385.64	1.0%
Herring	1,310	\$262.00	405	\$89.10	0	\$0.00	1,715	0.1%	\$351.10	0.0%
Butterfish	2,703	\$1,081.20	870	\$252.30	517	\$258.50	4,090	0.1%	\$1,592.00	0.1%
Scup	0	\$0.00	0	\$0.00	24	\$16.08	24	0.0%	\$16.08	0.0%
Bluefish	0	\$0.00	21	\$13.02	0	\$0.00	21	0.0%	\$13.02	0.0%
Sea Bass, Black	0	\$0.00	0	\$0.00	54	\$104.22	54	0.0%	\$104.22	0.0%
Grand Total	1,133,570.50	\$578,616.72	1,799,371	\$1,297,605.53	193,634	\$70,109.11	3,126,576	100.0%	\$1,946,331.35	100.0%
Trips	132		300		27		459			

5.2.2 Economic Effects of Proposed Action

The regulatory alternative presented in this framework document proposes to list the raised footrope trawl fishery as a *Multispecies Exempted Fishery* and to allow the resumption of directed whiting fishing in a spatially and temporally well-defined area off of Massachusetts in Cape Cod Bay. The minimum net effect of this action would be to continue the level of participation and, subject to biological and market considerations, generate levels of ex-vessel landings and value of whiting, red hake and other species similar to those generated in the experimental fisheries. These figures are discussed in Section 5.2.1 and are documented in McKiernan et al. (1997-2000). Table 11 and Table 12 summarize these figures for the 1998 and 1999 experimental fisheries.

The “status quo” alternative to the proposed action would be to not establish a small mesh whiting fishery in upper Cape Cod Bay. It is unlikely that under the “status quo” alternative, an experimental fishery of the magnitude of those from 1996 - 1999 would be allowed to continue. The net economic effect of the status quo would be the elimination of the landings and revenue from the experimental fishery as documented above. The elimination of the fishing opportunities in the raised footrope trawl fishery would significantly alter the effected vessel’s strategies for participation in other fisheries (groundfish and lobster, for example).

As discussed in Section 3.1, the “range” of alternatives for this fishery were considered and analyzed through the series of experimental fisheries from 1996-1999. For example, a number of different time and area parameters were tested in the experimental fisheries from 1996 to 1999. The parameters proposed in this framework adjustment were chosen in close consultation between the industry, Massachusetts DMF, the NMFS Regional Office, and Council staff. The history of the experimental fishery is documented in Section 1.3. The specifications proposed in this framework are the result of four years of experiments and discussions with all the stakeholders. The Council has deliberated all of the relevant historical information and concluded that the proposed action is the best and only option for consideration in this framework. Therefore, the economic effects pertain only to the proposed action versus the status quo discussed above.

5.2.2.1 Sustained or Increased Participation

The number of vessels targeting whiting in the Gulf of Maine peaked in 1987 at 99 vessels; all but one were from Massachusetts. That number fell to near zero in 1994 and 1995 due to restrictions on small mesh fishing implemented in Amendment 5. Beginning in 1996, the number of vessels targeting whiting in the Gulf of Maine rose to between 23 and 27; most of these vessels were participating the raised footrope trawl experimental fishery. Although it is difficult to predict, participation in an exempted raised footrope trawl fishery is not expected to increase dramatically. Many of the pre-1994 vessels that targeted whiting in the Gulf of Maine have been retired from the fishery through vessel buybacks. The experimental fishery participation levels provide a reasonable estimate of current interest in the fishery. There is the possibility that an exempted fishery may attract vessels from New Bedford or New Hampshire although this cannot be predicted.

5.2.2.2 Sustained or Increased Harvest

The question of sustained or increased landings of whiting with an exempted raised footrope trawl fishery is a biological issue and an effort issue. As discussed above, it is not clear whether an exempted raised footrope trawl fishery will attract additional effort and perhaps result in increased landings. The experimental fishery has been constrained spatially and temporally as will the proposed exempted fishery (the exempted fishery is constrained spatially and temporally *more* than the experimental fishery was). Fishermen were free to search for whiting within the constraints of the experimental fishery, and their success was likely a result of biological and environmental factors. Effort and landings will continue to be a function of abundance of whiting within the exempted fishery area. The clear benefit to individual vessels and their communities from continued landings of whiting and red hake from the exempted raised footrope trawl fishery is in the form of additional revenue generated amidst severe restrictions on their groundfishing activities.

5.2.2.3 Price Effects and Landings

It is not entirely clear what effect increased whiting landings from an exempted raised footrope trawl fishery would have on the market. Most whiting landed in Massachusetts ports is boxed, iced, and shipped to the Fulton Fish Market in New York City. Local consumption and processing of whiting is very small. The Fulton market is the central market maker for fresh whiting on the East Coast and therefore determines the price paid to Massachusetts vessels less the cost to ship the product to New York.

Vessel unloading capacity and trucking capacity are limiting factors when considering the effects of a potentially expanded raised footrope trawl fishery. Daily oversupply conditions can occur in Massachusetts ports, resulting in delayed delivery to market and a lower return to the vessel. Local bottlenecks are less of a long-term concern, recognizing that Massachusetts whiting landings were on the order of three times greater in the late 1980s than they are now, and many more unloading stations existed in Provincetown and Gloucester. With current improvements to state pier facilities in both ports, it is reasonable to assume that unloaders could set up facilities to handle any increase in the volume of landings. An analysis of market conditions in the Fulton market is beyond the scope of this document. Again, it is reasonable to assume that Fulton could accept an increased volume of landings from Massachusetts ports considering the much higher level of landings in the late 1980s.

5.2.2.4 Harvest Costs

Vessels engaged in the raised footrope trawl whiting fishery are large and small groundfish otter trawlers (and one Scottish seine boat). The only real cost of participating in the raised footrope trawl fishery is the cost associated with modifying an existing small mesh net with the raised footrope. This cost has been shown to be on the order of only a few hundred dollars through the numerous nets that have been modified by the industry and DMF for the raised footrope trawl experimental fisheries. This does not represent a significant additional cost to participate in this fishery, provided that the vessel in question already possesses a small mesh net. Most of the vessels interested in participating in this fishery in the Gulf of Maine already possess small mesh nets and have modified their small mesh gear either for this fishery (during the experimental years) or to fish in Small Mesh Areas 1 and 2, or because use of the raised footrope trawl gear has been widely accepted by the industry (many vessels fishing in the Cultivator Shoal Whiting

Fishery use the raised footrope trawl voluntarily because it results in “cleaner” catches of whiting).

A crude analysis of daily revenue throughout 1999 for vessels participating in the fall raised footrope trawl experimental fishery indicates that daily revenue for these vessels is three to four times greater during the peak of the whiting fishery than at any other time of the year. There is a smaller increase in daily revenue during the month of April when these vessels are targeting flounder. Without an analysis of the vessels costs for the raised footrope trawl fishery, it is assumed that daily costs are slightly lower than for other fishing activities during the year, primarily because the whiting grounds are quite close to Provincetown, and steam time is minimal. Costs associated with steaming are comparatively higher for Gloucester vessels as their groundfish grounds are closer than the whiting grounds, and particularly since the areas north and due west of Stellwagen Bank were eliminated from the experimental fishery in 1998 due to high cod bycatch.

5.2.2.5 Management and Monitoring Costs

It is not expected that the implementation and monitoring of this fishery should place any additional cost burden on the industry. Vessels expected to participate in the exempted raised footrope trawl fishery are already in the NMFS logbook program because they all possess federal multispecies permits. During all years of the experimental fishery, and especially during the 1999 season, sea sampling coverage was at an extremely high rate. This was a cost borne by DMF during the experimental fishery. Continued monitoring at a more reasonable level should be expected from both DMF and NMFS throughout the duration of the exempted fishery. In addition, the limited spatial scale of the proposed exempted fishery should result in reasonably low enforcement costs.

5.3 SOCIAL IMPACTS

5.3.1 Background Information

A complete description of the affected human environment (small mesh fisheries) is contained in Amendment 12 to the Northeast Multispecies FMP. The social impacts of the whiting management program are described in Section E.7.4 of the Amendment 12 document.

Vessels in the communities of Gloucester and Provincetown, Massachusetts have demonstrated the most interest in and dependence on the small mesh whiting fishery in Cape Cod Bay and the southern Gulf of Maine. These communities are most likely to benefit from the measures proposed in this framework adjustment. The following community profiles are excerpted from Amendment 12 and provide background information necessary to predict the magnitude and extent of social impacts likely to result from the establishment of the raised footrope trawl fishery as a seasonal whiting fishery in Cape Cod Bay and the southern Gulf of Maine.

5.3.1.1 Provincetown, Massachusetts¹

Provincetown (known by locals as “P’Town”) is a historic port with the second deepest harbor in the United States. Unlike Point Judith, the fishing fleet of Provincetown has concentrated its efforts on dragging, and has not significantly diversified into other fisheries. The majority of the fleet are eastern rig otter trawlers (side trawlers), complemented by a small fleet of inshore angling vessels. In 1995, a total of 18 vessels were counted at the docks, with their numbers equally divided between steel and wooden hull vessels.

The town pier has two large docks that extend for approximately 300 yards. The construction is wood and cement and is sturdy enough for 18-wheeler truck traffic. At the end of the pier in 1995 were two fish suppliers: Oceanic Seafood and Whaling City Seafoods. The docks are in good condition, and the Chamber of Commerce has been actively promoting the quality of the harbor for berthing of large offshore (foreign) vessels. The end of the pier is dominated by restaurants and local shops, but there is little evidence of businesses dependent on the fishing industry.

Most of the vessels observed in Provincetown (13 out of 18) were old eastern-rigged otter trawlers. Half of the fleet were of wood construction, while the other half consisted of rusty steel vessels. The fleet is a combination of scallopers and otter trawlers ranging from 45 to 68 feet in length. The otter trawlers employ 2-4 crew members, while the scallopers employ crews up to seven (NMFS regulations prohibit more than seven crew members on scallopers). The isolation of Provincetown ensures that all fishing families live in local residences. Some of these families are having difficulties with their mortgages as they struggle to survive in the fishery. Some of those in economic stress have returned to Portugal.

The age and condition of the vessels is the primary difficulty facing local fishermen. Some vessels have sunk right at the dock. Sunken dockside derelicts have been refloated and reused if not sold outright. Because fishing has been marginal and regulations restrictive, fishermen can only afford to fix the most pressing repairs, ignoring others which could be life-threatening on an extended fishing trip. The condition of the fleet has thus cut into the trawl time of the more problematic vessels. Captains are afraid to venture far from shore for extended periods because of the threat of sinking.

Besides 18 larger vessels, there were 19 smaller jig boats in Provincetown in 1995. Of these, 15 were longliners, two gillnetters, and two lobster boats. The smaller vessels are in better financial shape, since they are less costly, but also since they are not expected to provide direct support for more than 1-2 fishermen and their families. However, all vessels and fishing families are marginalized in this fishing community that is experiencing the worst possible combination of marketing, fish stock, and production capital losses.

The historical and cultural importance of fishing to Provincetown is reflected in murals in the town hall showing fishers bringing in the catch. Provincetown once had a booming fleet that took advantage of its proximity to local fishing grounds to catch large quantities of groundfish.

¹ Excerpted from Amendment 12; cited to: Aguirre International. 1996. An Appraisal of the Social and Cultural Aspects of the Multispecies Groundfish Fishery in New England and the Mid-Atlantic Regions, a report submitted to the National Oceanographic and Atmospheric Administration; McCay, Bonnie J., B. Blinkoff, R. Blinkoff, and D. Bart. 1993. Report, Part 2, Phase I, Fishery Impact Management Project, a Report to the Mid-Atlantic Fishery Management Council.

Fish were processed and shipped to Boston and other markets, and a thriving processing sector dominated the local docks. About 15 years ago, local respondents report that the industry began to experience a downturn as nearby fish stocks were depleted and area closures such as Stellwagen Bank limited the opportunities to fish near shore.

Recently, and probably due to the decline in groundfish abundance, the Provincetown fleet has invested a significant amount of time and effort into developing alternative fishing strategies, one of which includes fishing for whiting. Fishermen in Provincetown, with the help of the Massachusetts Division of Marine Fisheries, pioneered the Raised Footrope Trawl Experimental Fishery. A vast majority of active draggers out of Provincetown (almost all) have participated in this experiment. Because of the experimental fishery, Provincetown's whiting landings in 1997 were the second highest of any port in the state (almost 1 million pounds), a close second to Gloucester. Between 1980 and 1996, whiting landings in Provincetown have made it the fourth most significant whiting port in the region. Provincetown also was the principal port of landings for one vessel participating in the Cultivator Shoal Whiting Fishery during 1995, and three vessels in the Experimental Separator Trawl Fishery during 1996.

One disadvantage Provincetown has over other ports is its geographic location. Although it has an extremely deep natural harbor, being at the northernmost tip of Cape Cod, its distance from major fish markets has made it difficult to compete with ports having better access to ground transportation such as New Bedford and Gloucester. In the summer time, the one road going into an out of Provincetown on Cape Cod is regularly clogged with tourist vehicles on their way to visiting the beaches or traveling to the art and tourists shops that have come to dominant the Provincetown economic landscape. In the winter time, bad storms can close down the one road making regular access difficult.

Original fishers of Provincetown were English and Scottish immigrants, eventually replaced by Portuguese immigrants who came to dominate the fishing industry. Extended Portuguese families worked in occupational enclaves based on 6-7 person crews. They did not significantly diversify their economic activities and thus remained somewhat culturally and linguistically isolated from other residents. Migration between Provincetown and Portugal was common. Many of the more successful fishermen have left Provincetown over the last 25 years to join the fleet in New Bedford. They were replaced by newer immigrants who would take over aging vessels and "have a go at it." However, others stayed and have fished out of Provincetown for up to 40 years. Because of the outward migration of highlanders, the ethnic insularity of the fleet, and the limited processing, wholesaling, and distribution infrastructure available in Provincetown, there was really no impetus (or significant capital) to diversify fishing strategies. Those coming into the fishery took up with what was available, and had little motivation to change.

The major problem in the port of Provincetown is unemployment and underemployment of former fishermen. Day-to-day survival is a struggle as fishermen and their families cope with declining income (or no income) and increasing uncertainty because of fishery restrictions. However, given the fishing and fleet conditions, restrictions on days at sea are less of a problem now than just getting out to sea at all. One possible avenue for fishermen to improve their economic condition is through the retraining programs being offered by the Fishing Family

Assistance Center. In Provincetown, the primary barriers to the success of the program are as follows:

- Provincetown fishermen do not see the centers as an opportunity to seek a better life, but as a program designed to take away their opportunity to earn a living fishing;
- the program was not designed with any understanding of local fishing culture and life values;
- ethnic and linguistic barriers exist that limit the participation of male Portuguese fishermen; and
- the opportunities for retraining are limited by economic opportunities in the region.

5.3.1.2 Gloucester, Massachusetts²

Founded in 1623, Gloucester has been a fishing port for the last 372 years. Although commercial fishing is still a primary industry (Gloucester was ranked second in 1995 in pounds landed on the eastern seaboard), light industry and the service sector are gaining in importance, and foreign imports have taken the place of domestic landings for some local processors. The community's largest fishery employer, Gorton's of Gloucester, processes and markets imported fish only and has not purchased a pound of locally caught fish in 30 years. This is because foreign labor and harvesting costs are lower, there are fewer restrictions, and the supply is, therefore, more predictable. Most processors have looked to foreign suppliers to keep their businesses going. Their interests are not as linked to the fate of the local fishing fleet as in the past.

The Gloucester commercial fishing fleet can be divided into four major gear groups. These are mobile gear (trawlers) and three categories of fixed gear (gillnets, longlines, and lobster pots). Other types of commercial fishing include jigging, harpooning, diving for sea urchins, and various types of trapping. Other uses of marine resources include recreational and sportfishing, and seasonal whale watching tours. Groundfishing with mobile gear remains the predominant fishing strategy in Gloucester.

The traditional fishing fleet of Gloucester have been ground trawlers, using stern or (rarely) side trawling techniques. Most of the fleet land their fish in Gloucester, although larger vessels may land squid, whiting, and other species in Portland or Rhode Island. There has been a decline in landings due to restrictions on days at sea and area closures. The fleet in Gloucester is highly concentrated inside an extremely sheltered harbor, and affordable docking space is at a premium. With the introduction of ice plants in the late 1800s, iced fish could be marketed throughout the eastern seaboard, establishing Gloucester as one of the primary seafood ports in the nation. The existing processing and cold storage facilities have a combined capacity of nearly 95 million pounds. Replacement of this infrastructure would be prohibitively expensive if the fishery were allowed to collapse. The modern state dock, built in 1982, was recently renovated with funds from the Economic Development Administration. There are deep draft berths for 64 commercial vessels at the state fish pier. However, the high docking fees and insurance requirements have kept most commercial vessels off this dock. Scattered among the working vessels are charter

² Excerpted from Amendment 12; cited to: Aguirre International. 1996. An Appraisal of the Social and Cultural Aspects of the Multispecies Groundfish Fishery in New England and the Mid-Atlantic Regions, a report submitted to the National Oceanographic and Atmospheric Administration; McCay, Bonnie J., B. Blinkoff, R. Blinkoff, and D. Bart. 1993. Report, Part 2, Phase I, Fishery Impact Management Project, a Report to the Mid-Atlantic Fishery Management Council.

boat facilities and whale watching firms that have been taking over spaces vacated by a dwindling groundfish fleet. Space limitations mean most of the vessels must have some arrangement with a processing facility or dealer in order to tie up their vessels.

In 1997, more than 1,775,000 pounds of whiting, almost double that of any other port in Massachusetts, were landed in Gloucester. Eighty eight vessels landed whiting in Gloucester during 1997, three times as many vessels as in other Massachusetts ports. Its landings have made Gloucester the second largest whiting port between 1980 and 1996 (behind Point Judith). Only one vessel in the Cultivator Shoal Whiting Fishery claims Gloucester as its principal port, but it is likely that several vessels based in Gloucester participate in the Cultivator Shoal Whiting Fishery. Four vessels that participated in the Experimental Whiting Separator Trawl Fishery during 1996 claimed Gloucester as their principal port, but none did in 1997. Quite a few vessels out of Gloucester have either participated in the Raised Footrope Trawl Experimental Fishery or have expressed interest in doing so.

The decline in the economic viability of the larger fishing vessels has put incredible pressure on the ability of fishermen in Gloucester to make a living. As vessel size increases, there is a considerable increase in operating expenditures, such that the average total expenditures for a larger vessel operating with a normal complement of five crew is approximately six times that of the smaller day boats. Increased costs come from greater number of days at sea, which translates into higher labor, fuel, ice, and food expenditures. Risk is thus considerably greater for larger than smaller vessels.

The lack of security from fishing has steadily increased as the management regime becomes more restrictive, fish of certain target species are scarcer, and operating costs continue to rise. One outcome of this has been reduction in crew size to reduce labor costs. There has been a significant drop in the number of crew employed on the vessels. Some larger vessels are now operating inshore with skeleton crews of just two (e.g., a father-son operation). They cannot afford to work with a larger crew, nor can they afford to fish offshore for any extended periods of time.

Gloucester Display Auction³

The history of fish marketing has been characterized by an unbalanced economic relationship that favors the buyers. Taking advantage of fishermen has not been uncommon, yet recently the balance has shifted from dealers to favor fishermen to a greater degree, largely because of the increased competition for the dwindling fleet of suppliers. As the number of markets declined, the options available to the remaining suppliers became more uncertain as there was a decrease in the flexibility of the market due to reduced competition for product.

One remedy to improve the equity of price and market information has come in the form of the fish auction based on a model of the Portland Fish Exchange. The Gloucester Seafood Display Auction opened for business on November 29, 1997. It is privately operated by Star Fisheries of Gloucester, but Star Fisheries does not bid or purchase any fish through the Auction. Sellers and buyers equally pay a fee of .05 cents per pound to the auction for all fish bought and sold. Fish

³ This section was developed through personal communication with David Bergeron, Massachusetts Fishermen's Partnership and Gloucester Fishermen's Wives Association.

are unloaded and inspected by prospective buyers before the daily auction at 6:00 a.m. Vessels from Portland, Cape Cod, and beyond land at the Auction. Between 1 and 2 millions pounds of fish has been traded each month since it opened at the Gloucester Display Auction.

The Gloucester Display Auction has provided an opportunity to add value to local product and expand the market share. Quality fish sold at higher prices helps local fishers get into new markets. It is anticipated that, over time, the Gloucester Display Auction will create many shore-based jobs for displaced fishermen (crew and owner-operators). Initially, 25 jobs were anticipated from the market, with predictions of up to 100 in early development to 300 in later development. Job qualification for the market fits the profile of displaced/retired fishers. Individuals are needed who have hands-on familiarity with fish, and who can also sort and grade fish for quality. Fishermen can do this without any significant retraining activities. Most would not have to speak English or have any other skills that they do not already have from working in the fishery.

Fishing vessel owners consistently give good reviews of the auction operation. Fishermen report that ex-vessel prices have substantially increased, sometimes by 2 to 3 times the prices paid before the auction opened.

Even with the development of the Gloucester Display Auction, infrastructures related to fishing have faced a severe decline in recent years. Repair shops and equipment once regularly available now must be sought in New Bedford, Boston, or elsewhere. Overall, the ability to shift to other species and gear is limited by the capital investment in the fishing operation. The larger vessels characterizing the Gloucester fleet are often saddled with debt, tied to home mortgages, and too specialized to rig with other gears without further debt. This ability is also limited by the financial ties of the crew to the vessel. A family (or families) that have their homes mortgaged to a vessel cannot easily abandon that vessel to pursue another option.

In addition to adjusting to change within commercial fishing, the prospect exists for fishermen to move into nonfishing occupations or marine related jobs either for short-term, casual employment during down turns in groundfishing or as a viable career alternative. Retraining centers established throughout the Northeast, administered by state Departments of Labor, have been operating on the assumption that adjustment to the current crisis would include job training. With 95 enrolled, the retraining program has been as successful as possible in Gloucester due to strong leadership in the center and the pairing of center activities with the Gloucester Fishermen's Wives Association (GFWA), but the program suffers from several problems nevertheless. The GFWA is an organization with 26 years working experience with the fishing community. Despite the best efforts of the GFWA leadership in assisting the retraining process, there are still difficult problems to overcome. The major problem, of course, is that people do not want to give up fishing as a way of life, which does not compare to the job opportunities presented by the retraining centers.

Besides experiencing a reduction in fishing fleet and supporting infrastructure of the past twenty years, the contemporary fishing industry of Gloucester has gone through many changes. These are due to technological innovation, competition, and recent low abundance of certain fishing stocks along with increasing competition among a diversity of stakeholders. Reductions in days

at sea, closure of large areas, and decline in important groundfish stocks have reduced the viability of the groundfishing fleet. Nevertheless, local fishing and related businesses still employ an estimated 40% of Gloucester's population. Businesses that directly support the local industry are small and locally owned and operated.

Social Factors

Gloucester's historical and cultural dependence on fishing is revealed in the art and architecture of the community, both religious and secular. Committing resources for the creation of occupationally specific art and architecture shows a deep community dependence on that occupation. Examples include Our Lady of Good Voyage Church, the Gloucester fisherman statue, and the entrance mural of St. Ann's Church. A recent event of significance is the dedication of the plans for the statue of the fisherman's wife. The commission for this community symbol went to a local artist, and a recent ceremony commemorated the commissioning of the statue, which should be completed in three to five years.

Fishing life symbols do not occur in isolation. They are integral parts of social rituals. Rituals are repetitive seasonal actions that reveal the most deeply felt values of families and households (Turner 1967). Rituals of saint worship, of the blessing of the fleet, and seafood festivals are integrated with the secular and religious symbols that are a part of the cultural landscape of the community. Symbols and associated rituals are also representative of persisting social arrangements. Such arrangements include working crews, family networks, social clubs, fisher-processor credit relationships, and fishing associations.

Many of the residents of Gloucester are descendants from Nova Scotia who came to Cape Ann in the last century. The traditional fishing peoples have included Canadian, Scottish, Yankee, Portuguese, with most of the present fishing population of Italian descent. A large number of these fishers have come from fishing ports in Sicily. They came over here "seeking a better life." Migration was based on social networks and kinship. Once a family was established with one or two individuals, others would be urged to join them.

Just under 40% of the 27,000 residents of Gloucester are Italian Americans, having arrived in two primary waves of immigration. The traditional fishing family structure consisted of extended kinship networks of fathers, brothers and cousins who worked together on draggers. While men were responsible for fishing and earning money, women took care of the household, onshore finances and child care. This arrangement provided a very stable lifestyle that has been severely strained by the fishing crisis.

Cultural and social distinctions in Gloucester divide fishing families from the rest of the community, making the fishing community to some extent insular. Ethnically, most ground fishers are Sicilian/Italian, and there remain strong connections with Italian communities of origin. The fishing families are aligned to a local church and have been a largely closed population since the founding of the community in 1623. The Catholic parish was founded in 1849 and Catholic fisher arrived shortly after. Protestant fishers declined in numbers over the 19th century while Roman Catholics now comprise the great majority. These indicators of social and cultural distinctiveness--of insularity--have made the fishing community less open to outside intervention in the form of government regulation than fishers who are less distinct from non-

fishers such as fishery biologists and managers. Thus, religious as well as traditional values make the community more resistant to change than what would be designated the Yankee ports of the Cape (Chatham) and Maine. While fishers are not encouraging their sons to enter the fishery, they resist leaving it themselves. Unfortunately, several developments external to and within the industry, noted above and below, have made staying in the industry difficult.

As fishing becomes more difficult, there is an associated decline in job satisfaction, which may lead to mental health problems. The Department of Health, Education and Welfare (now Health and Human Services) noted in a 1973 summary of research by the Survey Research Center at the University of Michigan that the absence of job satisfaction can cause problems such as psychosomatic illnesses, anxiety, low self esteem, worry, tension, and impaired interpersonal relationships. Increased stress due to the crisis was noted by every key respondent interviewed in Gloucester, and resulted in occasional emotional expressions of stress during the interview. Stress has been attributed by key respondents to strong sentiments of uncertainty and helplessness, particularly since Amendment 5. An M.D. in Gloucester with decades of history treating local fisher families, processors, and managers noted a dramatic increase in stress related illness and disease over the last three years. This includes gastrointestinal illnesses, stroke, heart attacks, and hypertension. He attributed this directly to the impact of regulations and related changes. Heart disease and other illnesses which impact a person's social relationships have also been related to work dissatisfaction.

5.3.2 Social Impacts of the Proposed Management Action

National Standard 8 of the Magnuson Stevens Fishery Conservation and Management Act states that:

Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

The social impacts of the action proposed in this framework adjustment are likely to be positive because establishing a seasonal, small mesh fishing opportunity in Cape Cod Bay should mitigate some of the negative social impacts of the Framework 33 inshore area closures.

5.3.2.1 General Discussion

In general, two categories of fishing vessels are most affected by the Framework 33 area closures: (1) vessels from fishing communities directly bordering the area closures, and (2) vessels from other fishing communities that have traditionally accessed the closed areas to fish. Affected vessels from both categories include not only those vessels that fish for Gulf of Maine or Georges Bank cod, but also those vessels that fish for other species like flatfish or scallops.

The vessels in Category (1) are the most directly affected by the inshore and “rolling” area closures because the area closures border on the coastlines of their communities and, in some cases, extend up to 80 or 100 miles offshore for a period of time. For the Gulf of Maine, these vessels are primarily based in the communities of Gloucester, Newburyport, Provincetown, and

Boston, Massachusetts as well as most communities along the New Hampshire coastline. For Georges Bank, these vessels are primarily based in communities like New Bedford (MA) and communities along outer Cape Cod (primarily Chatham and Harwichport), Massachusetts.

Within this category of affected vessels, smaller vessels (less than 51 GRT) are at a greater disadvantage to adjust to the regulations because of their inability to travel beyond the area closures to fish. Medium and larger-sized vessels are undoubtedly constrained and inconvenienced, but the physical characteristics of these vessels may allow them to sustain some level of offshore fishing activity during the time period of closure. A majority of the vessels in question, especially those from Gloucester, Provincetown, Chatham, Harwichport, and communities in new Hampshire, are smaller-sized vessels and may be forced to seek alternatives to fishing for multispecies due to the closures. This held true for the inshore area closures implemented through Frameworks 25, 26, and 27. The communities in which these vessels conduct their fishing activities are likely to demonstrate the greatest short-term social impacts resulting from the Framework 33 area closures.

The second category of affected vessels is comprised of vessels that have accessed the closed areas to fish for a variety of species and are now facing closure of these fishing grounds. Although some of the affected vessels in this category include those from fishing communities bordering the area closures (see Category (1) above), others may come from communities in Maine and other New England and Mid-Atlantic states. These vessels, while inconvenienced and limited in terms of their flexibility, may still have the opportunity to fish in other parts of the Gulf of Maine as well as in other regions. Most vessels that have the capability to travel from their home communities to the closure areas should be able to travel to alternative areas to fish. Thus, affected vessels in Category (2) but not in Category (1) are more likely to shift their effort into other areas (and perhaps onto other species) and should have the opportunity to maintain an overall level of fishing closer to their historic levels. The communities in which these vessels conduct their fishing activities (Portland, Maine, for example) are less likely to experience short-term social impacts resulting from the Framework 33 closures.

There are other sectors of the groundfish industry that are likely to be affected by the Framework 33 area closures. Shoreside facilities that supply bait, ice, fishing gear, and other supplies may suffer from a decrease in fishing activity in their communities, especially if vessels in their communities are unable to access fishery resources for a period of time. The greater dependence on fishing for groundfish in communities like Gloucester could ultimately lead to a greater potential for community economic dislocation resulting from the management measures. According to recent information from the U.S. Census Bureau, Essex County (Gloucester, MA) employs close to 6,000 persons in fishing related businesses (processing, seafood markets, vessel repair, etc.). Support infrastructure in communities such as Gloucester is estimated to be at a premium, and very little additional infrastructure could be lost without having a major impact in the ability of the fleets in these communities to operate (Aguirre International, 1996).

Loss of income, changes in the structure of the fishery, and displacement from the fishery are likely to result in the short-term from the area closures implemented through Framework 33. The need for financial assistance, when combined with the perception of lowered social status resulting from decreased income, can often result in lowered self-esteem and negative impacts on

job satisfaction. These social impacts are often consequences of any management plan directed at reducing exploitation. They also tend to manifest themselves in alternatives that include either large-scale, long-term area closures or nearshore area closures that preclude opportunities for smaller vessels.

Inshore closures may require that vessels find new fishing grounds and/or travel farther to fish. The potential need to spend more time at sea as a result of Framework 33 area closures may produce negative short-term social consequences. In fact, length of time at sea has been cited as an important characteristic affecting job satisfaction because of the amount of time fishermen are required to spend away from their families and communities and because of the potential for owners of smaller vessels to compromise their own safety to maintain income during the closure time (Pollnac and Littlefield, 1983).

Negative social impacts of management actions usually result from the following:

1. Decreases in income
2. Changes in the structure of the fishery
3. Displacement from the fishery
4. Negative impacts on job satisfaction levels resulting from 1, 2, and 3 above
5. Perceptions of the rules as “bad” or “unfair” in terms of their potential impacts (Pollnac and Littlefield, 1983).

The impacts of the action proposed in this framework adjustment will be considered in the context of the factors listed above.

5.3.2.2 Gloucester, Massachusetts

Since 1996, the experimental raised footrope trawl fishery has provided a seasonal opportunity for many vessels fishing out of Gloucester. In 1997, 13 vessels from Gloucester were issued permits to participate in the experimental fishery; 11 of these vessels made a total of 232 trips during the 1997 season. Landings from the raised footrope trawl fishery in Gloucester totaled more than 1 million pounds and were valued at almost \$400,000 in 1997. In 1998, 23 vessels from Gloucester were issued permits to participate in the experimental fishery; 19 of these vessels made a total of 246 trips during the 1998 season. Landings from the raised footrope trawl fishery in Gloucester again totaled more than 1 million pounds and were valued at almost \$550,000 in 1998. In 1999, eight vessels from Gloucester were issued permits to participate in the experimental fishery; six of these vessels made a total of 132 trips during the 1999 season. Landings from the raised footrope trawl fishery in Gloucester totaled more than 1,130,000 pounds and were valued at almost \$600,000 in 1999.

Framework 33 includes the same area closures contained in Frameworks 27 and 31, plus some additional closures if 50% of the target TAC for Gulf of Maine cod is landed by July 31, 2000. It also extends the duration of the western Gulf of Maine area closure through April 30, 2002. As previously noted, vessels from Gloucester, especially smaller vessels that fish inshore, are likely to be impacted by most of the Framework 33 area closures. This is because the area closures either extend inshore to the Gloucester coastline or prohibit vessels from fishing (for groundfish or other species) in areas where they have traditionally fished. The majority of the Framework 33 impact will result from the closures that extend inshore to the Gloucester coastline during the months of April and May. From September – November, the time proposed for the raised

footrope trawl fishery, areas south and east of Gloucester are closed, but not areas directly adjacent to Gloucester's coastline.

5.3.2.3 Provincetown, Massachusetts

Historically, before the establishment of Regulated Large Mesh Areas, Provincetown's fleet was extremely active in small mesh whiting fisheries in the Gulf of Maine. Since that time, the experimental raised footrope trawl fishery has provided an important seasonal opportunity for many vessels fishing out of Provincetown. This fishery has been referred to as Provincetown's "bread and butter" and perhaps the only fishing opportunity for many Provincetown vessels during the fall and winter seasons. In 1997, 17 trawlers from Provincetown were issued permits to participate in the experimental fishery; all 17 of these vessels participated in the fishery and made a total of 374 trips during the 1997 season. Landings from the raised footrope trawl fishery in Provincetown totaled more than 1,130,000 pounds and were valued at almost \$350,000 in 1997. In 1998, 17 vessels from Provincetown were issued permits to participate in the experimental fishery; 16 of these vessels made a total of 170 trips during the 1998 season. Landings from the raised footrope trawl fishery in Provincetown totaled more than 650,000 pounds and were valued at \$331,000 in 1998. In 1999, 17 vessels from Provincetown were issued permits to participate in the experimental fishery; all 17 vessels participated in the fishery and made a total of 300 trips during the 1999 season. Landings from the raised footrope trawl fishery in Provincetown totaled about 1,800,000 pounds and were valued at almost \$1,300,000 in 1999.

Framework 33 includes the same area closures contained in Frameworks 27 and 31, plus some additional closures if 50% of the target TAC for Gulf of Maine cod is landed by July 31, 2000. It also extends the duration of the western Gulf of Maine area closure through April 30, 2002. Vessels from Provincetown are likely to be substantially impacted by the Framework 33 area closures, especially the Gulf of Maine area closures. Blocks 124 and 125, directly adjacent to and surrounding Provincetown, are scheduled to be closed for five months: October, November, February, March, and April. If 50% of the Target TAC for Gulf of Maine cod is landed by July 31, 2000, then Blocks 124 and 125 will also be closed during the month of January. One half of the year could be lost for vessels fishing out of Provincetown because most of them are clearly incapable of transiting beyond the closures to fish due to their size, age, and condition.

5.3.2.4 Impact of Options to Adjust the October/November Closure Provisions

The Council considered two options to allow the raised footrope trawl fishery to occur during the months of October and November when Blocks 124 and 125 are scheduled to be closed to multispecies fishing according to Framework 33 provisions. Option 1, the proposed action, exempts participants in the raised footrope trawl fishery from the closure of Blocks 124 and 125 during October and November *only* in the area proposed for the raised footrope trawl to occur. Option 2, the rejected alternative, would have moved the boundary of the October-November closure (Blocks 124 and 125) so as not to include the raised footrope trawl fishery area. Only the top 1/2 of Blocks 124 and 125 would have been closed during October and November under Option 2.

Option 2 would have been more likely to mitigate the negative social impacts of the Framework 33 measures to a greater degree than the proposed action. This is because Option 2 would have

provided vessels not only with an inshore small mesh fishing opportunity to target whiting and red hake, but also with an inshore opportunity to target large mesh regulated species. While the majority of positive impacts resulting from the proposed action are likely to be experienced by vessels in Provincetown and Gloucester (those vessels with a history in small mesh fisheries), the impacts of Option 2 would have been experienced by those vessels as well as vessels fishing from communities like Scituate and Plymouth. Opening the southern half of Blocks 124 and 125 would have allowed vessels to target regulated species in the area during the months of October and November. The vessels that would access these areas to fish for regulated species during this time are not likely to be the same vessels that would fish in the raised footrope trawl fishery. They are more likely to be large mesh vessels with no history in small mesh fisheries, vessels that would benefit from fishing for groundfish in nearshore areas that would otherwise be closed.

While the short-term impacts of Option 2 would have been more positive for a greater number of vessels located in more communities throughout the region, the long-term impacts of Option 2 could have been more negative to the extent that Option 2 compromises groundfish stock rebuilding. The Groundfish PDT did not support Option 2 because it could weaken the groundfish stock rebuilding program and consequently necessitate further restrictions to achieve conservation equivalency for opening the southern half of Blocks 124 and 125 during the months of October and November. Option 2 therefore contained more risk as it may have resulted in either more negative social impacts or a delay in the stream of positive impacts resulting from rebuilt stocks and less restrictive regulations in the long term. These long-term concerns could not be mitigated by the short-term positive impacts of this framework action on vessels in the affected fishing communities.

5.3.2.5 Summary and Conclusions

The proposed action is unlikely to result in any negative social impacts in coastal communities like Gloucester and Provincetown and is more likely to mitigate the negative social impacts resulting from current groundfish regulations (primarily the area closures implemented through Framework 33) in the Gulf of Maine. To the extent that the measures contained in this framework adjustment increase or maximize flexibility for the small mesh fishing fleet, short-term social impacts will be positive. Flexibility can produce several positive effects resulting primarily from an increased ability to plan fishing activities and make business decisions.

The proposed action is not likely to result in decreased income for the fleet. Rather, it is likely to provide vessels with an opportunity to sustain an income during a time when there are very few fishing opportunities, especially for vessels in Provincetown. In addition, it is unlikely to result in either changes in the structure of the fishery or displacement from the fishery. In turn, impacts on job satisfaction will be positive, as fishermen will have an opportunity to fish during months when they would not otherwise.